

ABSTRACT

A radio frequency antenna for use with a radio device embedded in a tire for operation in a frequency range of at least 130 MHz, comprises an antenna body, and an insulating coating surrounding the antenna body, the insulating coating having a dielectric constant less than a dielectric constant of the rubber material, and preferably less than 3, and having a thickness of at least 0.02 mm. The coating material preferably has a surface resistivity of at least 10^{12} ohms/sq and a volume resistivity of at least 10^9 ohms*cm. In addition, the coating material preferably has a dissipation factor less than 0.03. The antenna body is preferably a wire formed of spring steel, brass coated spring steel, or spring brass.